

WHAT IS CLAIMED IS:

1. A method of performing a cardiac procedure, comprising the steps of:
- (a) making a subxiphoid incision to provide an entry point for an endoscopic cannula, wherein said endoscopic cannula has at least one access port;
- (b) inserting said endoscopic cannula into the incision;
- (c) advancing said endoscopic cannula to the pericardium under endoscopic visualization; and
- (d) advancing a surgical instrument through said at least one access port of said endoscopic cannula.
2. A method according to claim 1, further comprising the steps of:
- (e) after step (c) and before step (d), providing an opening in the pericardium for the advancement of said endoscopic cannula into the pericardium;
- (f) after step (e) and before step (d), advancing said endoscopic cannula into the pericardium through said opening; and
- (g) after step (d), performing the surgical procedure on the heart.
3. The method of claim 1, wherein the subxiphoid incision has a length no longer than required for insertion of the endoscopic cannula.
4. The method of claim 1, wherein only a single subxiphoid incision is made.
5. The method of claim 1, wherein at least one additional subxiphoid incision is made during step (a), and the method also includes the step of:
- (e) inserting an additional surgical instrument through said at least one additional incision.

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6. The method of claim 1, further comprising:
(e) before step (b), using a dilation tool to provide a dilated cavity to facilitate insertion of the endoscopic cannula.
- 5 7. The method of claim 2, wherein said opening in the pericardium is provided by manipulating a pericardial entry instrument.
8. The method of claim 7, wherein the endoscopic cannula has a lumen and the pericardial entry instrument is advanced to the pericardium through the
10 lumen.
9. The method of claim 1, wherein said surgical instrument advanced in step (d) is a stapler for stapling off the atrial appendage.
- 15 10. The method of claim 1, wherein said surgical instrument advanced in step (d) is an ablation device.
11. The method of claim 1, wherein said surgical instrument advanced in step (d) is a device for performing epicardial mapping.
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12. The method of claim 1, wherein said surgical instrument advanced in step (d) is a device for performing intrapericardial drug delivery.
13. The method of claim 1, wherein said surgical instrument advanced in
25 step (d) is a device for performing a myocardial biopsy.
14. The method of claim 1, wherein said surgical instrument advanced in step (d) is a device for performing epicardial mapping.
- 30 Pub B7* 15. The method of claim 1, wherein said surgical instrument advanced in step (d) is a needle for injecting cardiac muscle cells or undifferentiated satellite cells for cellular cardiomyoplasty.

Pub B1

- 5 16. The method of claim 1, wherein said surgical instrument advanced in step (d) is a cannula for injecting pharmacological agents for angiogenesis.
17. The method of claim 1, wherein said surgical instrument advanced in step (d) is a robotic, cutting, stabilizing, or anastomotic instrument for performing coronary artery bypass or coronary artery bypass grafting.
- 10 18. The method of claim 1, wherein said surgical instrument advanced in step (d) is an energy probe or mechanical piercing element for piercing the heart muscle for transmyocardial revascularization.
19. The method of claim 1, wherein said surgical instrument advanced in step (d) is a device for creating a pericardial window.
- 15 20. The method of claim 1, wherein said surgical instrument advanced in step (d) is a stapler for stapling off the atrial appendage.
21. The method of claim 1, wherein said surgical instrument advanced in step (d) is a suture loop for cinching off the atrial appendage.
- 20 22. The method of claim 1, wherein said surgical instrument advanced in step (d) is a clip for sealing off the atrial appendage.
- 25 23. The method of claim 2, wherein said endoscopic cannula is advanced during step (f) to a location near the apex of the heart.
24. The method of claim 2, wherein the endoscopic cannula is advanced during step (f) to a location at the anterior region of the heart and is then swept to the posterior region of the heart.
- 30 25. The method of claim 2, wherein step (e) includes the steps of:

Pub B71

gripping a flap of the pericardium under endoscopic visualization using a pericardial entry instrument; and

cutting said flap of the pericardium to create an opening in the pericardium under endoscopic visualization.

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26. The method of claim 25, wherein step (e) further comprises the step of: aligning the pericardial entry instrument substantially tangentially to the pericardium under endoscopic visualization while gripping the flap of the pericardium.

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27. The method of claim 25, wherein the cutting step further comprises cutting the flap of the pericardium away from the underlying heart.

28. A method of performing a surgical procedure on a mediastinal organ other than the heart, comprising the steps of:

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(a) making a subxiphoid incision to provide an entry point for an endoscopic cannula, wherein said endoscopic cannula has at least one access port;

(b) inserting said endoscopic cannula into the incision;

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(c) advancing said endoscopic cannula to a surgical site within the mediastinum under endoscopic visualization; and

(d) advancing a surgical instrument through said at least one access port of said endoscopic cannula.

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29. The method of claim 28, further comprising the step of:

(e) after step (d), performing the surgical procedure on said mediastinal organ.

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30. The method of claim 28, wherein the subxiphoid incision has a length no longer than required for insertion of the endoscopic cannula.

Pub B71

31. The method of claim 28, wherein only a single subxiphoid incision is made.

32. The method of claim 28, wherein at least one additional subxiphoid incision is made during step (a), and the method also includes the step of:

(e) inserting an additional surgical instrument through said at least one additional incision.

33. The method of claim 28, further comprising:

(e) before step (b), using a dilation tool to provide a dilated cavity to facilitate insertion of the endoscopic cannula.

34. A method of performing a cardiac procedure with an endoscopic cannula having an expandable sheath overlying the cannula, comprising:

(a) incising skin overlying an entry point for the cardiac procedures;

(b) inserting an endoscopic cannula with an expandable sheath into the incision;

(c) advancing the endoscopic cannula to the pericardium under endoscopic visualization; and

(d) dilating a working cavity responsive to passing the cannula through the expandable sheath.

35. The method of claim 34 wherein dilating further comprises:

dilating a working cavity responsive to removing the cannula to a point near the proximal end of the expandable sheath.

36. The method of claim 34 further comprising the step of:

(e) dilating the working cavity to larger dimensions responsive to insertion of surgical tools having dimensions greater than the cannula into the expandable sheath.

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- 5 37. The method of claim 34 further comprising the steps of:
(e) inserting a surgical tool for performing a cardiac procedure into a proximate end of the expandable sheath in which the surgical tool has a maximal dimension greater than a maximal dimension of the expandable sheath overlying the cannula;
(f) advancing the surgical tool within the expandable sheath to a distal end of the expandable sheath; and
(g) performing a cardiac procedure using the surgical tool.
- 10 38. An endoscopic cannula, comprising:
a cannula, having an elongated body having arcuate shape and defining at least one lumen;
a tip positioned at a distal end of said elongated body, said tip having a tapered distal end and being transparent for facilitating visualization through said tip; and
15 an endoscope, positioned at least partially in said at least one lumen for providing visualization of a surgical procedure through said transparent tapered tip.
- 20 39. The endoscopic cannula of claim 38, wherein said cannula is composed of a flexible material.